REMARKS

The enclosed is responsive to the Examiner's Advisory Action mailed on March 6, 2007. At the time the Examiner mailed the Office Action claims 1-18 and 30-43, were pending. By way of the present response Applicants have: 1) amended claims 1, 10, 30, and 41. As such, claims 1-18 and 30-43 are now pending. Applicants respectfully request reconsideration of the present application and allowance of all claims now presented.

35 U.S.C. § 112 Rejections

Claims 1, 10, 30 and 41 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Applicant traverses the rejection on the grounds that the language in question was added to more particularly point out and distinctly claim the subject matter being claimed and contained in the specifications. However, in order to expedite prosecution of the application, the questioned language was removed in the amended claims. Support for the subject matter being claimed can be found throughout the specification, in particular page 9, paragraph [24] states, "The activation temperature may be selected to be **above normal operating temperatures** for PCB 100." Paragraph [24] continues to disclose how the activation temperature is used to trigger color changes that reflect dissipating heat related to cooling efficiency of the PCB and non-uniform heat dissipation. Paragraph [25] discloses how elevated temperatures may be detected through color visualization. Paragraph [26] discloses an embodiment where the label "HOT" is used to identify temperatures which exceeded a certain level. Further support can be found in at least paragraphs [5], [17], and [30], and in original claim 27.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1, 10, 30 and 41 under 35 U.S.C. § 112.

Claims 1, 10, 30 and 41 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant traverses the rejection on the grounds that the language in question is well understood in the art. Electronic components are typically provided with specifications that identify the desired normal operating temperature ranges for the components. The highest value of such a range would be well understood in the art and easily quantified by the specifications provided by the manufacturer. Nonetheless, in order to expedite prosecution of the application, the questioned language was removed in the amended claims.

The rejection also alleges that "the highest desired normal range" lacked antecedent basis. Applicant traverses the rejection on the grounds that the above term was used as an adjective to a noun that did have proper antecedence, and thus the term "the" referred to the noun. However, in order to expedite prosecution of the application, the claims were amended to overcome the rejection and provide proper antecedent basis.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1, 10, 30 and 41 under 35 U.S.C. § 112.

35 U.S.C. § 102(e) and 35 U.S.C. § 102(b) Rejections

Claims 1, 2, 9, 30-34 and 43 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,872,453 to Arnaud et al. (hereinafter "Arnaud").

Claim 1 relates to a carrier substrate having a visible surface and a heat generating component coupled to the carrier substrate; and a thermochromatic material having an activation temperature, disposed adjacent to the carrier substrate, wherein the thermochromatic material produces a visual change of the visible surface when the activation temperature of the thermochromatic material is reached, wherein the carrier substrate coupled to the heat generating component comprises **normal operating temperatures** when the carrier substrate and heat generating component **operate normally**, and wherein the **thermochromatic material is selected to have its activation temperature above the normal operating temperatures** of the carrier substrate coupled to the heat generating component.

In contrast, Arnaud discloses a thermochromatic material for a solar panel and fails to disclose or suggest all the elements of amended independent claim 1. Arnaud at least fails to disclose or suggest that the **thermochromatic material is selected to have its activation temperature above the normal operating temperatures** of the carrier substrate coupled to the heat generating component. The Final Office Action states in page 6, lines 1-3, that "The Examiner takes the position that this is a functional limitation which does not further limit the thermochromatic material nor changing the chemical or physical aspect of the thermochromatic material." (Emphasis added).

Thermochromatic materials are specifically engineered and designed to have a very specific activation temperature. This is achieved by selecting a type of thermochromatic material and then physically and/or chemically modifying the

material to achieve a very specific activation temperature. **Paragraphs [20] to [22]** of the specifications disclose several **chemical and physical** mechanisms to design and engineer thermochromatic materials to **different activation temperatures** by physical and/or chemical modifications. Selecting a specific activation temperature for a thermochromatic material further limits the thermochromatic material to a subset having very specific physical and/or chemical properties that differ from those thermochromatic materials having different activation temperatures from the selected activation temperature.

Therefore, selection of an activation temperature is **not a functional limitation** because it further limits the group of thermochromatic materials by changing the chemical and/or physical aspects of the material. Therefore, determining the activation temperature by defining it to be above the normal operating temperature of the carrier substrate is also **not a functional limitation**. Changing the normal operating temperature changes the activation temperature, which changes the chemical and physical aspects of the thermochromatic material, thus further limiting the claim. **The Examiner is required to consider the limitation**.

Therefore, in Arnaud, in order for the solar panel to function properly, the conductive layer is specifically designed to achieve temperatures high enough to switch the reflecting/absorbing state, which is the activation temperature of the thermochromatic material. Therefore, Arnaud discloses that the activation temperature is **below**, at least some of the **normal** operating temperatures of the heat generating component, and thus does not read on the claim.

In addition, Arnaud not only fails to disclose or suggest an activation temperature **above** the normal operating temperatures of the component, Arnaud actually teaches away from the invention because the themochromatic layer in Arnaud must have an activation temperature **below** the conductive layer's normal operating temperatures in order for the solar panel to function. There is no motivation to modify Arnaud to have an activation temperature above the normal operating temperatures of the solar panel, since that would suggest that the solar panel is overheating.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Examiner asserts that a conductive layer **resembles** a printed circuit board. However, a 102 rejection requires that every element be disclosed or suggested. The test is if the reference **inherently suggests** the limitation, and not, if the element **resembles** the limitation. It is **not inherent** that a conductive layer is a printed circuit board, and thus, the 102 rejection of claim 2 should not be sustained. If the Examiner sustains the rejection, Applicant requests that the Examiner respond to the above argument.

Further, the rejection fails to identify in the reference the limitations of identification markings printed with the thermochromatic material, nor for detecting

heat from the component, which is in excess of normal operating conditions, nor wherein the carrier substrate is selected from the group consisting of: printed circuit boards (PCB), motherboards, daughterboards, controller boards, video adapters, and network interface cards, nor wherein the heat generating component is selected from the group consisting of: processors, chipsets, graphic chips, voltage regulator components, and any combination thereof, nor wherein the visual thermal differential is useful in providing diagnostic and identification procedures.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1, 2, 9, 30-34 and 43 under 35 U.S.C. § 102(b) as being anticipated by "Arnaud".

Claims 1-2, 6, 9-13, 30-31, 34, 41 and 43 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,229,514 to Larson (hereinafter "Larson").

In light of the above remarks, Larson also fails to disclose or suggest all the elements of the independent claims, and actually teaches away from the invention. Larson discloses a display device consisting of electrodes on a substrate, which **when operational** become heated and heat the thermochromic material at least to its activation temperature. The electrode's **highest** normal operating temperature must be **at least equal to or above** the activation temperature of the thermochromic material in order for the display device to operate, and thus does not read on the claim. If the activation temperature was **above the normal operating temperatures**, which includes the highest normal operating temperature, then the thermochromatic material would not turn on during normal operation and the display

would not function, rendering the modification inoperable. Therefore, the activation temperature of the thermochronic material is **below** the electrode's normal operating temperatures, and thus teaches away from the invention.

Larson fails to disclose or suggest all the limitations of the claim, thus the 102 rejection is improper.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1-2, 6, 9-13, 30-31, 34, 41 and 43 under 35 U.S.C. § 102(b) as being anticipated by "Larson".

Claims 1-3, 6, 9 -13 and 17-18, 30-31, 38 and 41-43 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,922,242 to Parker (hereinafter "Parker").

In light of the above remarks, Parker also fails to disclose or suggest all the elements of the independent claims and teaches away from the invention. Parker discloses a display device having a thermochromatic material and a resistive element, which achieves a temperature **above** the **activation** temperature of the thermochromatic material and changes it from opaque to transparent, see abstract. Parker requires that the activation temperature be **below** at least some of the **normal operating temperatures** in order for the display device to turn on and function. Independent claims 1, 10, 30, and 41, all require that the activation

temperature be **above** the normal operating temperatures of the component. Thus, Parker fails to disclose of suggest all the limitations of the claims.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1-3, 6, 9 -13 and 17-18, 30-31, 38 and 41-43 under 35 U.S.C. § 102(b) as being anticipated by "Parker".

35 U.S.C. § 103(a) Rejections

Claims 1-18 and 30-40 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Parker or Arnaud or Larson in view of U.S. Patent No. 6,880,396 to Rait (hereinafter "Rait").

Rait fails to remedy the deficiencies of Parker, Arnaud, and Larson discussed above. Rait discloses a level indicator device, which fails to disclose or suggest all the limitations of the independent claims and teaches away from the invention. The level indicator is operational when the activation temperature of the thermochromatic material is **below** at least some of the operating temperatures of the liquid level indicator in order to detect the liquid level, and thus, does not read on the claims.

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to **modify the reference** or

to combine reference teachings. Second, there must be a reasonable **expectation of success**. Finally, the prior art reference (or references when combined) must teach or suggest **all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See **MPEP § 2143 - § 2143.03** for decisions pertinent to each of these criteria.

The 103 rejection and all the prior art of record fail to disclose or suggest at least all the limitations of the independent claims, as described above, and many of the limitations of the dependent claims, including but not limited to claims 34-40. Further, all the prior art of record fails to provide a reasonable expectation of success, since they all teach away from using a thermochromatic material having an activation temperature **above** the **normal operating temperatures** of the devices disclosed in the references. Further, the Examiner has not provided a motivation for each of the alternative rejections to justify modifying the primary references to overcome the above described deficiencies, particularly when the secondary reference is also deficient in at least the same features as the primary references.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1-18 and 30-40 under 35 U.S.C. § 103(a) as being unpatentable over "Parker" or "Arnaud" or "Larson" in view of "Rait".

CONCLUSION

Applicant respectfully submits that the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Mr. Neal Berezny at (408) 720-8300 or Mr. Michael A. Bernadicou at (408) 720-8300.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,
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